AMERICAN MEDICAL ASSOCIATION TRIAL: JURY'S VERDICT

Press dispatches from Washington, D. C., under date of April 4, stated that the trial of the American Medical Association and other defendants on charges of antitrust law violation had come to an end. Reference was made to the trial in the March issue of CALIFORNIA AND WESTERN MEDICINE, on page 104; and as the current number is in press it is possible to give only a brief additional item. *The Journal of the American Medical Association,* in which transcripts of the trial proceedings have been appearing, will probably give other information concerning Justice James M. Proctor's instructions to the jury. It is gratifying to know that officers of the American Medical Association and other medical societies were acquitted. The case will no doubt be appealed.

News dispatch follows:

Split Verdict Convicts American Medical Association, Clears Doctors

Washington, April 4 (AP).—A Federal court jury tonight found the American Medical Association and the Medical Society of the District of Columbia guilty of antitrust law violation, but acquitted eighteen individual defendants in the case. The jury had deliberated eleven hours.

The Government charged that the two organizations and the individual physicians interfered with operations of Group Health Association, a coöperative organization giving medical service for a monthly fee.

Justice James M. Proctor told the jury that individual physicians had the right to refuse consultation or assistance asked by the physicians of Group Health, and also that they had the right of *"legitimate criticism . . . either separately or by collective effort."*—San Francisco *Examiner,* April 6, 1941.

Other State Association and Component County Society News.—Additional news concerning the activities and work of the California Medical Association and its component county medical societies is printed in this issue, commencing on page 230.

EDITORIAL COMMENT†

LOCAL TISSUES IMMUNITY

The possibility, recently suggested in the popular press, of direct immunization of the brain and spinal cord by subdural injection of killed poliomyelitis virus, renders the general theory of local tissue immunity of current clinical interest.

Historically, theories of acquired tissue immunity have been developed around two main hypotheses. First, around the concept originally championed by Ehrlich, which assumes that specific antibodies are but desquamated, preformed "side-chains," "receptors" or specialized chemical components hereditarily present in each and every tissue of the animal body. Any tissue cell thus becomes a logical source of specific antibodies. Local vaccines would be logically effective if injected into any parenchymatous tissue.

The accumulated contradictions and inconsistencies in laboratory and clinical research, however, eventually led to an almost unanimous discard of this preformist theory. The newer theory assumes that specific antibodies are new-formed (*i. e.,* nonhereditary) humoral or cellular components specifically synthesized to combat deleterious environmental factors. Antibodies are thus conceivably formed by some specialized defensive endocrine, rather than by each and every cell of the body. Earlier attempts to confirm this hypothesis by ablation methods, chemical extraction of special tissues and by colloidal blockade, however, did not yield fully convincing evidence.

Much of the experimental evidence pointed to the reticulo-endothelial tissues as the sole or dominant antibody-forming tissues. Attempts to prove specific antibody formation by the spleen, lymph glands, bone marrow, and other reticulo-endothelial structures, however, almost invariably yielded inconclusive results. As early as 1898, for example, Pfeiffer and Marx[1] titrated the bacteriolysins in aqueous extracts of the spleens of intravenously immunized rabbits, and at times found the splenic titer higher than that of the blood stream. Since splenic mobilization of intravenously injected antibodies was subsequently demonstrated, their data were not sufficient to prove antibody formation in the spleen.

Among the most ingenious later experiments are those reported about five years ago by McMasters and Hudack[2] of the Rockefeller Institute. These investigators injected mice intradermally in the two ears with two different bacterial antigens, and after varying time intervals titrated the specific agglutinin content of the regional lymph glands. They found an earlier appearance and a higher titer of homologous agglutinins in the homolateral lymph gland, the homolateral titer at times being higher than that of the blood stream. Although their data did not rule out the possibility of a selective mobilization of humoral antibodies, it strengthened the belief that specific agglutinins are synthesized in regional lymph nodes.

A much more convincing method of attack is currently reported by Hartley[3] of the University of Chicago, who devised a method of local tissue vaccination that would prevent antigenic spread to other parts of the body. He found that intradermal injection of dilute aluminum hydroxid gel stimulated the local formation of cutaneous nodules. These nodules consisted predominately of macrophages, which were found to be actively phagocytic to locally injected carbon particles (dilute India ink).

In order to prevent antigenic spread, living vaccinia virus was adsorbed to aluminum hydroxid gel, and the infected gel injected directly into the

† This department of CALIFORNIA AND WESTERN MEDICINE presents editorial comments by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to all members of the California Medical Association to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

1 Pfeiffer, R., and Marx: Zeitschr. f. Hyg., 272, 1898; Deutsch. med. Woch., 24:47, 1898.

2 McMasters, Philip D., Hudack, Stephen S.: Jour. Exp. Med., 61:783, 1935.

3 Hartley, George, Jr.: Jour. Infect. Dis., 66:44, 1940.

macrophagic nodules. The virus-ladened gel was rapidly engulfed by the local phagocytes. Four days later the animals were sacrificed by air embolus, the vaccinated nodules removed, frozen in liquid nitrogen, ground to an impalpable powder, and extracted at ice-box temperature in ten volumes of physiologic sodium chlorid solution. The 10 per cent extracts thus obtained were centrifuged and filtered through a Seitz asbestos pad to remove any residual vaccinia virus. The filtrates were then titrated for virucidal properties.

Titrations from nineteen rabbits showed that 0.05 cubic centimeters of the 10 per cent tissue extract almost invariably continued at least four virucidal units, each unit being defined as the amount necessary to neutralize one infectious skin dose of homologous vaccinia virus. This is equivalent to 1,000 extractable virucidal units per gram of macrophagic tissue. Control tests showed that in seven of the locally vaccinated rabbits no trace of virucidal action was demonstrable in the undiluted blood serum, nor in control extracts from the spleen, liver, or bone marrow. The conclusion seems warranted that the vaccinated skin nodules were the sites of formation of the virucidal antibodies. This is the first unequivocal evidence of specific antibody synthesis by local reticulo-endothelial tissues.

But many immunologists believe that it eventually may be shown that other tissue cells of the animal body are capable of specific immunologic adaptations. They recognize, however, that this belief is based on an earlier and now generally discarded preformist theory, and that macrophagic immunity is the only type of local tissue immunity thus far fully established by experimental evidence. Until this proof is available, direct vaccination of the brain and spinal cord will remain a pure biologic gamble.

P. O. Box 51.

W. H. MANWARING,
Stanford University.

The rapid decline in tuberculosis mortality rates has been due mainly to lessening in the incidence of infection. Among those infected, the toll, though diminished, is still appalling. Mortality statistics, morbidity reports, autopsy examinations, tuberculin tests, and x-ray surveys indicate that about half of all infected individuals develop clinical tuberculosis, and that from 10 to 20 per cent of them eventually die of the disease. The high risk of disease and death due to infection by the tubercle bacillus justifies increased efforts for its prevention.—Emil Bogen, M. D., *American Review of Tuberculosis,* August, 1940.

Selection of Blood Bank Donors.—Only those persons who have been born in this country and who have never lived in districts where malaria is prevalent should be used as donors for blood banks, Ernest F. Gordon, M. D., Yonkers, New York, advises in *The Journal of the American Medical Association.* He says that such a policy will minimize the possibility of spreading the disease from man to man. The first recorded case of an accidental transmission of malaria through transfused stored blood is reported by him.

ORIGINAL ARTICLES

SOME FACTORS INVOLVED IN THE CARE OF THE PATIENT SERIOUSLY ILL WITH BILIARY TRACT DISEASE*

By I. S. RAVDIN, M. D.
Philadelphia, Pennsylvania

THE intimate relationship of cholecystitis and hepatitis, generally accepted by most observers, must indicate that, in most instances, when a stone passes into the common bile duct there is apt to be an existing hepatitis before the effect of ductal occlusion still further damages the liver cells. That extensive hepatitis may coexist with simple gallstone disease is not so generally accepted, but it is nevertheless true. The occlusion of the common bile duct by a stone is further complicated by the fact that, in most instances, the gall-bladder is at that time moderately or severely damaged. Under such circumstances the failure of the gall-bladder to concentrate the trapped bile leads to a rapid increase in the extra- and intrahepatic bile pressure, so that hepatic secretory suppression occurs at an earlier period after obstruction.

The opportune time, therefore, to operate on a patient with gall-stones is early, when the stones are still present in the gall-bladder and when the patient is suffering from the classical dyspepsia, or colic, or both, of simple calculus disease. It is, moreover, of importance to remove any calculi from the common duct at the primary operation. The time-honored concept that a previous history of jaundice is the indication for common-duct exploration has too frequently resulted in the primary or secondary operation being done following extensive liver injury, or even during a period of intense obstructive jaundice, when the risk of operation is greatly increased. Palpation of the common duct is a poor method of accurately determining the presence of stones, and the majority of stones found at a secondary operation are the result of faulty exploration of the extrahepatic bile passages at the primary operation. The surgeon can gain little relief from a troubled conscience lest the standpoint that the stones may have formed in the common duct subsequent to cholecystectomy.

FUNCTION TESTS

It is during a state of partial liver insufficiency that many of these seriously ill patients come for surgical aid. It is important, therefore, to determine, if possible, the exact degree of hepatic insufficiency which may exist. It is possible in those organs whose functions are few in number to make accurate functional tests, but this becomes exceedingly difficult in an organ whose activities are manifold, and in which the impairment of each function is not of the same degree.

* From the Harrison Department of Surgical Research Schools of Medicine, University of Pennsylvania, and the Surgical Clinic of the Hospital of the University of Pennsylvania, Philadelphia.

Read before the Third General Meeting at the sixty-ninth annual session of the California Medical Association, Coronado, May 6–9, 1940.